A & P II
Practice Test 2

1. There are three (3) chemical categories of hormones. Which of the following is not one of these categories?
   a. Steroids
   b. Amines
   c. Proteins
   d. All of the above are categories

2. Proteins and amines bring about cellular changes in a different way that do steroids. The binding of the hormone to a stimulatory receptor will cause___________________.

3. The_________________ is the largest endocrine gland.

4. Which of the following are symptoms of hypothyroidism?
   a. Easy weight gain
   b. Low energy levels
   c. Low body temperature
   d. A and B only
   e. All of the above

5. Which one of the following is correct?
   a. Prolactin is produced by the neurohypophysis
   b. Prolactin is under the control of both Prolactin RF and Prolactin IF
   c. Prolactin has an important function in males
   d. Prolactin is a glycoprotein

6. Name the enzyme that is activated and released when a protein or amine binds to a stimulatory receptor.
   a. Adenyl cyclase
   b. Steroids
   c. Cyclic amp
   d. Steroid receptor complex

7. The pituitary gland is housed by the___________________.
8. Which hormone of the neurohypophysis stimulates contractions of the uterus and the "letting down" (releasing) of milk?
   a. ADH
   b. Prolactin
   c. LH
   d. Oxytocin

9. Define target organ:

10. List four reasons that would cause TSH-RF to be released.
    a.
    b.
    c.
    d.

11. Which of the following are effect of FSH in females.
    a. Tenderness in breasts
    b. Stimulates ovaries to produce estrogen and progesterone.
    c. Causes development of egg cells and egg containing follicles.
    d. Causes ovulation
    e. C and D
    f. All of the above

12. Which of the following statements about calcitonin is incorrect
    a. Lowers concentration of serum calcium
    b. Raises concentration of serum phosphate
    c. Inhibits osteoblasts and activates osteoclasts.
    d. All of the above are correct
    e. B & C only are incorrect

13. Glugagon is produced by the_________cells in the pancreatic islets.
    a. Alpha
    b. Beta
    c. Delta
    d. Glucoid
14. Which of the following is the larger, more anterior lobe of the pituitary gland?
   a. Thalamus
   b. Hypophysis
   c. Neurohypophysis
   d. Adenohypophysis

15. List the hormones of the adenohypophysis
   a. 
   b. 
   c. 
   d. 
   e. 
   f. 
   g. 
   h. 

16. ________________ is the hormone that stimulates release of hormones from the adrenal cortex.

17. Explain the role protein kinases play in a stimulatory response.

18. Which one of the following is **not** true of endocrine glands?
   a. They secrete their product into the blood stream.
   b. Their product is a hormone.
   c. They are, generally speaking, ductless glands.
   d. All of the above are true of endocrine glands.

19. The pituitary is really two (2) separate glands. List them.
   a. 
   b. 
20. Which of the following lowers concentrations of serum calcium and phosphate as well as inhibiting PTH.
   a. FSH
   b. LH
   c. Calcitonin
   d. Thyroxine

21. List the effects of ADH.
   a. 
   b. 

22. ___________ is the name for the connector between the 2 lobes of the thyroid gland.

23. Which of the following stimulates the release of prolactin-RF?
   a. Elevated estrogen and progesterone
   b. Elevated potassium
   c. Cold environment
   d. Increased mental learning

24. _________________ cells are modified neurons that travel through the wall of the infundibulum and actually synthesizes the 2 hormones released by the neurohypophysis.

25. The metabolic hormones, are ___________ and ___________. They act to elevate general metabolic rates. List 3 other effects.
   a. 
   b. 
   c. 
26. Define prostaglandins:

27. Describe negative feedback:

28. Which of the following are hormones released by neurohypophysis?
   a. ACTH
   b. Oxytocin
   c. LH
   d. A and C only
   e. All the above

29. ________________ are non-polar, lipid soluble and synthesized from cholesterol?
   a. Steroids
   b. Protein and amines
   c. All hormones
   d. All of the above

30. Matching:

1. Plica Circularis  A. Fingerlike projections of individual cells.
2. Villi            B. Mesentary that supports the transverse colon.
3. Microvilli       C. Longitudinal bands of muscle that run along the large intestine
4. Lacteal         D. Series of pouches in the large intestine
5. Crypts of Lieberkuhn E. Shelf-like folds that extend into the lumen of the small intestine
6. Plica Semilunares F. S-shaped curve in the colon leading to the rectum
7. Mesocolon        G. Invagination between bases of adjacent villi that secrete intestinal juice
8. Sigmoid colon    H. Multicellular finger-like projections
9. Taenia Coli      I. Ridge-like folds in the large intestines.
10. Haustra         J. Lymphatic capillary only found in villi
31. Answer true or false. If the answer is false, cross out the underlined word or phrase that makes the statement false and write in the correct word or phrase that makes the statement true.

___a. Proteins and Amines can only act as a secondary messenger.

___b. Positive Feedback is defined as a change in one direction will cause a change in the opposite direction.

___c. GH, LH and Prolactin are all hormones of the adenohypophysis.

___d. The Neurohypophysis Synthesizes oxytocin and ADH.

___e. The Digestive System is innervated by only the Sympathetic System of the autonomic nervous system.

___f. Oxytocin stimulates and sustains milk production following birth.

___g. LH stimulates the ovaries to produce estrogen and progesterone.

___h. The two lobes of the thyroid gland are connected by the Infundibulum.

___i. Hormones spread throughout the entire body and are capable of crossing the blood brain barrier.

___j. Proteins, Amines, and Steroids all bring about cellular changes in the same way.

___k. The Neurohypophysis synthesizes and releases two (2) hormones.

___l. The Adenohypophysis is connected to the hypothalamus via the Neurosecretory cells.

___m. Gluconeogenesis is the creation of glucose-like compounds from non carbohydrate sources.

___n. Most of the organs of the digestive system receive their innervation by Cranial Nerve #10.

___o. The root of the tongue is anchored to the Hyoid Bone.

___p. The stomach is able to fully digest and absorb proteins.
32. Delta cells of the pancreas produce:
   a. somatomedin  
   b. somatotropin  
   c. somatostatin  
   d. somatotropic hormone

33. ________________ is the most important calcium ion regulator.

34. Which of the following are effects of cortisol?
   a. Break down of stored proteins and release of free amino acids
   b. Mobilization and breakdown of fats and release of free fatty acids
   c. Causes glucose sparing
   d. Can cause the liver to perform gluconeogenesis
   e. All of the above
   f. A and B only

35. The most important thing the large intestines absorb is______________________.

36. Which of the following is true of PTH?
   a. Elevates serum calcium
   b. Decreases absorption of calcium in small intestines
   c. Lowers serum phosphate
   d. Activates osteoblasts
   e. A and C only
   f. All of the above

37. Which one of the following listed occurs thirdly?
   a. Adenyl Cyclase is activated
   b. Receptor sites are stimulated on the target cell membrane.
   c. Increase in cyclic amp concentrations
   d. ATP breakdown

38. List the direct and indirect effects of aldosterone.
   Direct--
   Indirect--
39. Name the organ(s) that are imbedded on the posterior surface of each thyroid lobe.
   a. Thalamus
   b. Hypothyroids
   c. Hypothalamus
   d. Parathyroids

40. _______________ is the name for the thickening of the tunica muscularis where esophagus meets the stomach.

41. The gastric phase occurs when foods are present in the stomach. The hormone released into the bloodstream at this time is:
   a. Gastrin
   b. Secretogogin
   c. Pepsinogen
   d. Pepsin

42. What is the function of aqueous juice?

43. The_________are the primary organs targeted by aldosterone.

44. _______________ is the term for the thick, semifluid substance in the stomach.

45. _______________, which is secreted by the alpha cells, stimulates the liver to perform glycogenolysis.

46. Which of the following are accessory structures of the G.I. tract?
   a. Salivary glands
   b. Liver
   c. Gall Bladder
   d. Pancreas
   e. All of the above
47. There are two (2) types of secretory cells in the salivary glands. Which of the following secretes the thin watery fluid that is highly concentrated with amylase?
   a. Chief cells
   b. Mucus cells
   c. Acinar cells
   d. Serous cells

48. The esophagus must pass through the diaphragm, name the opening that allows this to happen.

49. The__________cells in the gastric glands secrete digestive enzymes.

50. ______________ are foods that cause an especially powerful release of gastrin.

51. Bile contains which of the following:
   a. Biliverdin
   b. Water
   c. Cholesterol
   d. All of the above

52. ______________ is a by product produced by the microflora of the large intestine.

53. Which section of the small intestine is retroperitoneal?

54. Enzyme juice is produced by the__________cells in the pancreas.

55. _______________are the cells in the kidneys that release renin in response to_______________________________.

56. The__________cells in the islets of the pancreas release insulin.
57. List the four (4) layers in the wall of the G.I. Tract in order beginning with the innermost layer.
   a. 
   b. 
   c. 
   d. 

58. Which of the salivary glands have ducts that open under the tongue near the frenulum?

59. Which of the following are roles that HCl play in the stomach?
   a. Provides optimum pH for pepsin to operate
   b. Can break tertiary and quaternary bonds
   c. Kills bacteria
   d. All of the above

60. Bile is produced in the_________________and stored in the___________________.

61. ______________________ is the flap of tissue that anchors the tongue to the floor of the oral cavity.

62. The mixing type contractions of the small intestine are called ____________________.

63. List two (2) effects Angiotensin II will have:
   a. 
   b. 

64. The_____________________is a tube that extends from the mouth to the anus.

65. The gastric glands in the stomach originate in which layer of the wall?
   a. Tunica mucosa
   b. Tunica submucosa
   c. Tunica serosa
   d. Gastric layer
   e. All layers contain gastric glands
66. Name the two (2) bile pigments.
   a. 
   b. 

67. The accumulation of fatty chyme in the duodenum and upper jejunum will cause the release of two (2) hormones from the small intestines that will inhibit all activity in the stomach. Name them.
   a. 
   b. 

68. Which of the following are effects of ANF:
   a. Decrease in sodium ion retention (increase in naturessis)
   b. Decrease in potassium ion retention
   c. Increase in blood volume
   d. Increase in urine output
   e. A and D only
   f. All of the above

69. The________________ are the largest of the salivary glands, and are located over the masseter.

70. __________________ is the space just below the nose.

71. Fill in the blanks:

<table>
<thead>
<tr>
<th>Inactive Precursor</th>
<th>Converting Enzyme</th>
<th>Active Protease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trypsinogen--------</td>
<td>--------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>--------------------</td>
<td>trypsin-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Procarboxypeptidase--</td>
<td>------------------</td>
<td>----------------</td>
</tr>
</tbody>
</table>
72. Which of the following are the hormones of the adrenal medulla?  
   a. Thyroxine and Triiodothyronine  
   b. Tensinogen and Angiotensinogen  
   c. Cortisol and Aldosterone  
   d. Epinephrine and Norepinephrine  
   e. All of the above

73. Blood travels to the liver from two (2) sources. List them. 
   a.  
   b. 

74. Define Glycogenesis:

75. If gastric juice is released by seeing or smelling food this is the___________stage.

76. What is the substance in bile that has true digestive functions?

77. ___________________ is the name for the fold of peritoneum that meets and divides the liver into right and left lobes.

78. As in any mucous membrane, the tunica mucosa consists of three (3) layers. List these layers, beginning with the innermost.  
   a.  
   b.  
   c. 

79. The area between the teeth and the lips is known as the:  
   a. Oral cavity  
   b. Fauces  
   c. Vestibule  
   d. Palate
80. Which of the following is the name for the enlargement of the common bile duct, just outside the duodenum?
   a. Duodenal papillae
   b. Sphinchter of Oddi
   c. Biliary opening
   d. Ampulla of Vater

81. ________________ are the ridges and folds inside the stomach.

82. Which of the following are the direct effects of Aldosterone?
   a. Retains potassium and hydrogen ions
   b. Reabsorbs sodium and bicarbonate ions
   c. Secretes potassium and hydrogen ions
   d. B and C
   e. None of the above

83. ________________ is the term for a moist lump of food formed in the mouth.

84. Which of the following lists the portions of the small intestine in the correct order from beginning to end?
   a. Ileum, Duodenum, Jejunum
   b. Duodenum, Jejunum, Ileum
   c. Jejunum, Ileum, Duodenum
   d. None of the above

85. List five functions of the liver.
   a.
   b.
   c.
   d.
   e.

86. Bacteria in the intestines produce what essential substances that humans cannot synthesize? _________________________ and _________________________

87. Define and differentiate between catabolism and anabolism.
88. T/F Glycolysis does not require oxygen.

89. In anaerobic fermentation, pyruvic acid is converted to what? ______________

90. In aerobic conditions, what is the bridge step? ______________

91. In the Kreb's Cycle what must be reformed in order for the cycle to continue? ______________

92. Glycerol must first be converted to ______________ and fatty acids must first be converted to ______________ before either can be used as an energy source.

93. Urea is formed from what product of amino acid reactions? ______________

94. Differentiate between chylomicrons and micelles.

95. List the 3 phases of gastric juice secretion. At which stage would secretagogues act?

96. Fatty chyme in the duodenum causes the release of 2 hormones: ______________ and ______________. Describe the three separate actions they both have.

97. Describe the swallowing reflex (5 steps). What are the 3 phases?
A & P II
PRACTICE TEST 2
ANSWER KEY

1. D

2. Activation of adenyl cyclase or inactivation of it

3. Thyroid gland

4. E

5. B

6. A

7. Sella turcica of sphenoid bone

8. D

9. Organ that a hormone produces an effect on

10. A. Decrease in T₃ concentration
    B. Stress
    C. High Altitude
    D. Cold environment

11. C

12. E

13. A

14. D

15. A. LH  E. ACTH
    B. FSH  F. ICSH
    C. GH  G. Prolactin & MSH
    D. TSH

16. ACTH

17. Convert inactive phosphorylases into active, add phosphate group to molecule
18. D

19. A. Neurohypophysis  B. Adenohypophysis

20. C

21. A. Decrease in urine output and increase in concentration of urine  
       B. Vasoconstriction at high levels of ADH

22. Isthmus of thyroid

23. A

24. Neurosecretory cells

25. T_3 & T_4  
       A. Increase body temperature  
       B. Stimulate Nervous System activity  
       C. Work synergistically with GH

26. Short-acting local acting hormones, lipids, paracrine function, released from cell membrane

27. Production of end change/substance inhibits the initial reaction

28. B

29. A

30. 1. E  6. I  
    2. H  7. B  
    3. A  8. F  
    5. G  10. D
31. A. T
   B. F - negative feedback
   C. T
   D. F - neurohypophysis stores & releases
   E. F - both the parasympathetic and
   F. F - Prolactin
   G. T
   H. F - Isthmus of thyroid
   I. F - are not
   J. F - in different ways
   K. F - stores & releases
   L. F - hypophyseal portal vein
   M. T
   N. T
   O. T
   P. F - is not

32. C

33. PTH

34. E

35. H₂O

36. E

37. D

38. A. Increases reabsorbance of Na⁺ and HCO₃⁻.
     B. Increases renal secretion of K⁺ and H⁺.

     Increases H₂O retention.
     Gradually increases blood pressure.

39. D

40. Cardiac sphincter

41. A
42. Increases pH of chyme and helps produce the alkaline environment of the small intestine. Increases concentration of bicarbonate ions.

43. Kidneys

44. Chyme

45. Glucagon

46. E

47. D

48. Esophageal hiatus

49. Chief

50. Secretogogues

51. D

52. Vitamin K & B complex vitamins

53. Duodenum

54. Acinar

55. Juxtaglomerular cells, low renal blood pressure.

56. Beta

57. A. Tunica mucosa       C. Tunica muscularis
    B. Tunica submucosa      D. Tunica serosa
58. Submandibular glands (text p. 762) See also Figure 24.8 (sublingual s.g. have ducts along the base of the tongue not next to the frenulum)

59. D

60. Liver, gallbladder

61. Lingual frenulum

62. Segmentation contractions

63. A. Vasoconstriction
   B. Release of Aldosterone

64. G.I. tract/alimentary canal

65. A

66. A. Biliverdin  B. Bilirubin

67. A. Secretin  B. CCK (cholecystokinin)

68. E

69. Parotid

70. Philtrum

71. Enterokinase, Trypsin, Chymotrypsinogen, Chymotrypsin, Trypsin, Carboxypeptidase

72. D

73. A. Hepatic portal vein (from GI tract)
   B. Hepatic artery (from aorta)
74. Formation of glycosen from glucose, decreases blood glucose levels.

75. Cephalic

76. Bile salt molecules (text p. 792)

77. Falciform ligament

78. A. Epithelium  B. Lamina propria  C. Muscularis mucosa

79. C

80. D

81. Rugae

82. D

83. Bolus

84. B

85. A. Hepatocytes produce bile  
B. Detoxification of blood  
C. Phagocytize old RBC's  
D. Store iron and vitamin D  
E. Add clotting agents and plasma proteins to blood  
F. Modifies nutrient content of blood  
G. Synthesize urea and ketone bodies

86. Vitamin K, some B complex vitamins

87. Catabolism: breakdown, degradation complex substances to simpler substances make/give off energy  
Anabolism: Synthesis, requires energy
88. T  (Glycolysis occurs under both anaerobic & aerobic conditions)

89. Lactic acid (in skeletal muscles) (text pp. 257 & 805)

90. Pyruvic acid------>acetyl CoA
Conversion of pyruvic acid (end product of glycolysis) to acetyl CoA which feeds into the Kreb's Cycle

91. Oxaloacetic acid

92. PGAL, Acetyl CoA

93. Ammonia (NH₃)

94. Micelles are formed from fats when they are emulsified by bile salts. Micelles are small, water-soluble structures that allow fatty acids to reach the intestinal epithelium. Chylomicrons are lipoproteins formed when triglycerides collect into small droplets which are encased in proteins. These globules leave the epithelial cells by exocytosis and enter lacteals. (text p. 792)

95. 1) Cephalic phase
2) Gastric Phase (*-secretagogues increase gastrin levels here)
3) Intestinal phase

96. Secretin, CCK
Actions: 1) Inhibit secretion of gastric juices, 2) Inhibit gastric motility, and 3) affect acinar cells & gallbladder contraction

97. 1) Soft palate & uvula elevated (seals off nasopharynx)
2) Hyoid & larynx elevated
3) Base of tongue presses down on epiglottis (flap)
4) Epiglottis covers entrance to larynx
5) Food enters esophagus
The 3 phases: Oral, Pharyngeal, Esophageal